



DIVISION OF WATER RESOURCES

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MEMORANDUM

TO: Well Owners within the Black Forest Fire area
FROM: Matthew Sares, Manager, Hydrogeological Services Branch
DATE: June 26, 2013
SUBJECT: Prevention of groundwater contamination through wells damaged by the Black Forest Fire in El Paso County

The Black Forest Fire of June 2013 burned a large area of El Paso County where the primary source of water supply is groundwater provided by wells completed in the Denver Basin aquifers. It is now evident that the fire has impacted many of the wellhead structures that were used by residents and businesses in the area. To protect the quality of groundwater in your well and in the Denver Basin aquifers used for regional water supply, it is important to implement some immediate protection to damaged well sites.

Inspect the wellhead structure of your well. Is the steel surface casing or the well cap compromised by melting or cracking in a way that would allow an opening to the surface and exposure to the surrounding environment? If so, action must be taken to minimize the contamination risk to your well and to the groundwater aquifer.

The wells most likely to have significant damage are those that are completed with PVC plastic casing, which is typically white in color. In certain areas, the fire burned hot enough to melt the PVC production casing even though it was enclosed within a larger diameter steel surface casing. It is possible that in some older wells, the well was constructed without steel surface casing and the PVC casing that extended above the ground surface has been burned or melted down to or below the ground surface.

In cases where the surface casing and the PVC production casing has been damaged and the well is open to possible infiltration of surface water and sediment, it is imperative to protect the wellhead and eliminate the potential for groundwater contamination. Any significant rainfall in the burn area will mobilize ash and sediment in surface runoff that could flow into the well compromising its future operation and contaminating groundwater resources. It is imperative that any open well be secured to protect your asset and the groundwater.

The following are the preferred methods to protect your well and the groundwater in your aquifer if your damaged well is now open to infiltration of surface water, ash, and sediment.

- 1) Contact a local licensed water well driller or pump installer. These professionals can assess the condition of your well to determine if it can be repaired, or is beyond repair and must be abandoned. If the well cannot be repaired, the licensed professional can abandon (plug and seal) the well as required by the Water Well Construction Rules and help the well owner submit an application for construction of a replacement well.

Because of the number of wells potentially affected, it is likely that there will be significant delays in the ability of the water well driller or pump installer to address your situation. In the mean time, the well owner must protect their damaged well and the aquifer from potential contamination. The following are temporary methods to protect your well until such time that a water well professional can craft a permanent solution.

- 2) Protect the wellhead by installing a temporary surface casing around the well with a cap. This can be composed of steel pipe, PVC pipe, or galvanized culvert pipe.
 - a. From a local pipe supplier, purchase an 18-inch long piece of pipe and cap with a diameter at least 2 inches larger than the existing damaged well casing.
 - b. Dig a trench around the well 6 inches deep to imbed this temporary surface casing. Try to have a minimum of 12 inches of the temporary casing extend above the ground surface.
 - c. Backfill and forcefully compact the soil in the trench around the temporary casing. Ensure that the ground surface slopes away from the wellhead.
- 3) Protect the wellhead by installing a wood frame and plywood cap.
 - a. Construct a wooden box open on one side (its base) with 2x4 lumber and plywood such that the box is 18 inches high and wide enough to fit over the damaged well.
 - b. as above
 - c. as above

Note: PVC, galvanized pipe, and wood are not approved surface casing materials for permanent wellheads. These are only allowed as a temporary surface casing in these unusual circumstances.

If your steel surface casing appears intact and undamaged, and the well cap is undamaged it should prevent surface contamination of the well even if the interior PVC production casing is damaged. Contact your local licensed water well driller or pump installer to assess your well as soon as practical.

If you have any questions regarding the information above, please contact our Denver office at (303) 866-3581 and direct your call to Matt Sares (x 8290) or Chief Well Inspector, Nolan Lloyd (x 8271). For questions about the well permitting process to replace your damaged well, please call Division 2 staff in Pueblo at (719) 542-3368 or our Groundwater Information Desk at (303) 866-3587 for assistance.

Protecting your damaged well from contamination is important to the long-term use of your aquifer. If you implement the steps outlined in this letter you will be helping yourself and your neighbors now and for the future. The Colorado Division of Water Resources wishes you the best in rebuilding your community.